DOCUMENT RESUME

ED 434 565 HE 032 293

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TITLE	Year 2000 Computing Crisis: Significant Risks Remain to Department of Education's Student Financial Aid Systems. Testimony before the Subcommittee on Oversight and Investigations, Committee on Education and the Workforce, House of Representatives.
INSTITUTION	General Accounting Office, Washington, DC.
REPORT NO	GAO/T-AIMD-98-302
PUB DATE	1998-09-17
NOTE	25p.
AVAILABLE FROM	U.S. General Accounting Office, P.O. Box 37050, Washington, DC 20013 (first copy, free; each additional copy, $2). Tel: 202-512-6000; Fax: 202-512-6061; Web site: <http://www.gao.gov>.
PUB TYPE	Legal/Legislative/Regulatory Materials (090) -- Opinion Papers (120)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	*Computer Software; Computers; Contingency Management; Higher Education; *Student Financial Aid; *Student Loan Programs
IDENTIFIERS	*Department of Education; *Year 2000 (Programming)

ABSTRACT

This testimony discusses the risks faced by the U.S. Department of Education due to the year 2000 (Y2K) computing crisis, focusing on student financial aid systems, the actions the Department has taken in recent months to address these risks, and the key issues the Department must deal with if its computer systems are to be ready for the century change. The report maintains that the Department faces major risks of Y2K failures severely disrupting the student financial aid delivery process, including delaying disbursements and application processing. Further, because of systems interdependency, repercussions from Y2K-related problems could be felt throughout the student financial aid community--a network that includes students, institutions of higher education, financial organizations, and other government agencies. The testimony notes that while the Department is accelerating its program, it remains in a position of playing catch up due to its late start in implementing a comprehensive Y2K program. The report concludes that the Department must focus on developing appropriate contingency plans to ensure business continuity in the event of key systems failures. An appendix includes a list a related General Accounting Office reports and testimony addressing the Y2K crisis. (MDM)

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United States General Accounting Office

GAO

Testimony

Before the Subcommittee on Oversight and Investigations, Committee on Education and the Workforce, House of Representatives

For Release on Delivery
Expected at
10 a.m.
Thursday,
September 17, 1998

YEAR 2000 COMPUTING CRISIS

Significant Risks Remain to Department of Education's Student Financial Aid Systems

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Mr. Chairman and Members of the Subcommittee:

We are pleased to testify before you today on the status of the Department of Education's efforts to ensure that its computer systems supporting critical student financial aid activities will be able to process information reliably after December 31, 1999. The Year 2000 (Y2K) computing crisis has received much attention in recent months—and deservedly so. Virtually every organization, public and private, that uses computers is at risk.[1] My statement today will describe the risks to the Department of Education, with a focus on student financial aid systems, actions the department has taken in recent months to address these risks, and key issues the department must deal with if its systems are to be ready for the century change: testing of systems, exchanging data with internal and external partners, and developing business continuity and contingency plans.

In brief, Education faces major risks that Year 2000 failures could severely disrupt the student financial aid delivery process, including delaying disbursements and application processing. Further, because of systems interdependencies, repercussions from Year 2000-related problems could be felt throughout the student financial aid community—a network including students, institutions of higher education, financial organizations, and other government agencies. The department was very slow in implementing a comprehensive Year 2000 program to address these risks—basic awareness and assessment tasks were not completed until recently. Education is now accelerating its program, but with the slow start, it remains in a position of playing catch up. Accordingly, the department has major challenges ahead but limited time remaining to adequately deal with them. Therefore, it must also focus on developing appropriate contingency plans to ensure business continuity in the event of key systems failures.

Our Nation's Year 2000 Risks Are High

Before I go into detail regarding the Department of Education's Year 2000 challenges, I would like to first discuss the Year 2000 issue in broader terms to put the department's efforts into perspective. As the world's most advanced and most dependent user of information technology, the United States possesses close to half of all computer capacity and 60 percent of

[1]For the past several decades, computer systems have typically used two digits to represent the year, such as "98" for 1998, in order to conserve electronic data storage and reduce operating costs. In this format, however, 2000 is indistinguishable from 1900 because both are represented as "00." As a result, if not modified, systems or applications that use dates or perform date- or time-sensitive calculations, may generate incorrect results beyond 1999.

Internet assets.[2] Consequently, the upcoming change of century is a sweeping and urgent challenge for public-sector and private-sector organizations alike.

For this reason we have designated the Year 2000 computing problem as a high-risk area[3] for the federal government, and have published guidance[4] to help organizations successfully address the issue. To date, we have issued over 60 reports and testimony statements detailing specific findings and recommendations related to the Year 2000 readiness of a wide range of federal agencies.[5] Our reviews of federal Year 2000 programs have found uneven progress, and our reports contain numerous recommendations, which the agencies have almost universally agreed to implement. Among them are the need to establish priorities, solidify data exchange agreements, and develop contingency plans. While progress has been made in addressing the federal government's Year 2000 readiness, serious vulnerabilities remain and many agencies are behind schedule.

Education's Mission Relies on Information Systems

The Department of Education's mission is to ensure equal access to education and to promote educational excellence throughout the nation. To carry out this mission, it works with states, schools, communities, institutions of higher education, and financial institutions by providing

- grants to education agencies and institutions to strengthen teaching and learning;
- student loans and grants to help pay the costs of postsecondary education;
- grants for literacy, employment, and self-sufficiency training for adults;
- enforcement of civil rights laws to ensure nondiscrimination by recipients of federal education funds; and
- support for research, development, evaluation, and dissemination of information to improve educational quality and effectiveness.

[2]Critical Foundations: Protecting America's Infrastructures (President's Commission on Critical Infrastructure Protection, October 1997).

[3]High-Risk Series: Information Management and Technology (GAO/HR-97-9, February 1997).

[4]Year 2000 Computing Crisis: An Assessment Guide (GAO/AIMD-10.1.14, September 1997), which addresses the key tasks needed to complete each phase of a Year 2000 program (awareness, assessment, renovation, validation, and implementation); Year 2000 Computing Crisis: Business Continuity and Contingency Planning (GAO/AIMD-10.1.19, August 1998), which describes the tasks needed to ensure the continuity of agency operations; and Year 2000 Computing Crisis: A Testing Guide (GAO/AIMD-10.1.21, Exposure Draft, June 1998), which discusses the need to plan and conduct Year 2000 tests in a structured and disciplined fashion.

[5]A listing of our publications is included as an attachment to this statement.

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The largest single federal elementary and secondary education grant program is title I of the Elementary and Secondary Education Act. This program serves educationally disadvantaged children through program-specific grants. The fiscal year 1997 appropriation for the disadvantaged was $7.3 billion.

Student financial aid programs are administered by Education's Office of Postsecondary Education (OPE) under title IV of the Higher Education Act of 1965, as amended. The department is responsible for the collection of more than $150 billion in outstanding loans, and its data systems track approximately 93 million student loans and 15 million grants. Four major types of student aid are currently in use: the Federal Family Education Loan Program (FFELP),[6] the Federal Direct Loan Program (FDLP), the Federal Pell Grant Program, and campus-based programs.[7] These programs together will make available about $51 billion to about 9 million students during the 1999-2000 academic year.

FFELP and FDLP are the two largest postsecondary student loan programs, and Pell is the largest postsecondary grant program. FFELP provides student loans, through private lending institutions, that are guaranteed against default by some 36 guaranty agencies[8] and insured by the federal government, while FDLP provides student loans directly from the federal government. Pell provides grants to disadvantaged students.

In many ways, Education's student financial aid delivery system is similar to functions performed in the banking industry, such as making loans, reporting account status, and collecting payments. As with the banks, the department faces a serious and complex challenge with the Year 2000 problem because of its heavy reliance on technology. The department currently maintains 11 major systems for administering student financial aid programs. These systems were developed independently over time by multiple contractors in response to new functions, programs, or mandates, resulting in a complex, highly heterogeneous systems environment.[9] The

[6]FFELP was formerly the Guaranteed and Stafford Student Loan programs.

[7]The campus-based programs include the Federal Work-Study Program, the Federal Perkins Loan Program, and the Federal Supplemental Educational Opportunity Grant Program.

[8]State and private nonprofit guaranty agencies act as agents of the federal government, providing a variety of services, including payment of defaulted claims, collection of some defaulted loans, default-avoidance activities, and counseling to schools and students.

[9]Student Financial Aid Information: Systems Architecture Needed to Improve Programs' Efficiency (GAO/AIMD-97-122, July 29, 1997).

systems range from legacy mainframes, several originally developed over 15 years ago, to recently developed client-server environments.[10] The fiscal year 1998 budget to develop, operate, and maintain these systems is $311 million, and is expected to increase to $378 million in fiscal year 1999.

Education's Risks Require Strong Management Approach

According to Education's own assessments of the severity of Year 2000 failures, the student financial aid delivery process could experience major problems unless all systems are compliant in time. These include

- delays in disbursements, such that lenders might not receive timely interest and allowance payments, if external data exchanges fail;
- reduction in the department's ability to transfer payments, process applications for program benefits, or monitor program operations;
- risks that student financial aid programs may not function properly if they do not receive critical data for originating loans and for reporting payments and financial information; and
- risks that postsecondary education students may lack the ability to verify the current status of their loans or grants.

To overcome these types of risks, Education must implement effective Year 2000 programs. An effective Year 2000 program requires the disciplined, coordinated application of scarce resources to an agencywide system conversion that must be completed by a fixed date, and an understanding of the wide range of dependencies among information systems.

An organization can mitigate its risk of Year 2000 complications through a structured approach and rigorous program management. One generally accepted approach, presented in our Year 2000 Computing Crisis: An Assessment Guide (GAO/AIMD-10.1.14), has five phases:

- awareness — defining the problem and gaining executive-level support;
- assessment — inventorying and analyzing systems, and prioritizing their conversion or replacement;
- renovation — converting, replacing, or eliminating selected systems;
- validation — ensuring that all converted or replaced systems and interfaces will work in an operational environment; and
- implementation — deploying Year 2000-compliant systems and components, and implementing contingency plans, if necessary.

[10]In a client-server environment, individual workstations (the client) and shared processors (the server) cooperate over a network to complete tasks.

Education's Year 2000 Program Started Very Slowly

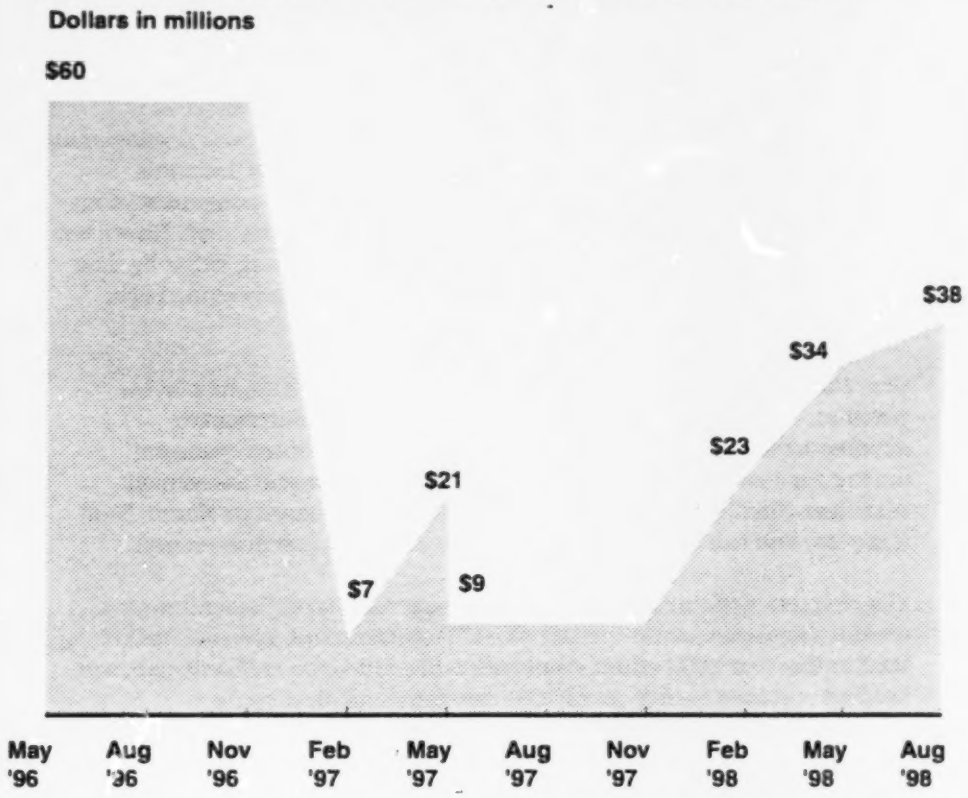
Education was very slow to establish a comprehensive, timely Year 2000 program. One key factor contributing to this delay was the instability of the department's Year 2000 project manager position, which suffered continual turnover. The department initially established the position in February 1995 to provide oversight and guidance to Education's Year 2000 activities. During the 19-month tenure of the first project manager, a high-level Year 2000 briefing document (dated May 1996) was developed in response to a request from a congressional committee. At that time, Education estimated that it would complete a Year 2000 program strategy document and corresponding management plan by August 1996. However, no strategy document or management plan was developed, either by that deadline or during the 14-month tenure of the second project manager, which ended in September 1997.

The third Year 2000 project manager, who spent only 3 months in the position, contracted with consultants to assist the department in developing a draft Year 2000 management plan. The fourth manager, during his 4-month tenure, initiated many awareness and assessment activities. Finally, the fifth project manager was assigned on March 30 of this year, and has continued the progress started by her predecessor.

The frequency of turnover in project managers delayed Education in completing basic awareness activities. These activities included dedicating staff to the Year 2000 effort, communicating with data exchange partners, holding regular steering committee meetings, and developing a management plan. Project office staff to help the department coordinate Year 2000 activities were not assigned until December 1997, when the fourth project manager was appointed. In addition, while a draft management plan was distributed for comment in mid-November 1997, it was not made final until April of this year.

Education experienced a corresponding delay with basic assessment activities, which it did not report as completed until this past March—about 9 months after the Office of Management and Budget (OMB) milestone. These assessment activities included conducting an enterprisewide inventory of information systems and data interfaces, assessing and prioritizing systems, establishing Year 2000 project teams for business areas and major systems, and initiating contingency planning.

Figure 1: Education's Year 2000 Cost Estimate, May 1996 Through August 14, 1998



Source: Department of Education.

Concurrent with its slowness in completing its assessment, Education's estimated costs have fluctuated widely. The initial cost estimate in May 1996 was $60 million,[11] which decreased dramatically to $7 million in February 1997 but then rose again in February 1998 with an estimate of $23 million. Last month, the cost estimate increased further, to $38 million, as Education continued renovating and testing its systems. Prior to February 1998, little documentation existed supporting how these

[11]The $60 million cost estimate was not changed until February 1997. For our analysis, we assumed the cost estimate remained constant.

estimates were derived. Figure 1 highlights the wide variation in cost estimates over the past 2 years.

Education Has Recently Accelerated Its Progress

With its slow start, Education has been playing catch up and working to accelerate its progress. Management staff have regular meetings to discuss progress on Year 2000 compliance, and principal office staff meet biweekly to discuss progress on individual mission-critical systems. The biweekly meetings include Education staff responsible for the particular system; the system contractor; Year 2000 program office staff; and contractor staff responsible for independently verifying and validating renovation, validation, and implementation activities. According to department officials, Year 2000 compliance has also now been given top priority in terms of in-house resources.

Education's Year 2000 management plan established the Year 2000 project manager as the focal point for monitoring progress, providing support, and directing the plan. The project manager works with the program offices, which are responsible for assessing and renovating their systems, as well as tracking and reporting progress on compliance activities. Senior leadership of each program office is responsible for providing adequate support to its Year 2000 tasks and ensuring that Year 2000 compliance is achieved.

The Department of Education has reported to OMB that it has 14 mission-critical systems, of which 11 are student financial aid systems. Table 1 summarizes the Year 2000 status of each mission-critical system as of this month. In brief, according to the department's September 10, 1998, report, four mission-critical systems have been implemented and are in operation, one is in the process of being implemented, five systems are being validated, and the remaining four are still being renovated.

Table 1: Reported Year 2000 Compliance Status of Education's Mission-Critical Systems

System	Current status	Estimated Y2K cost	(Estimated) completion
Student financial aid systems			
Campus Based System	Implemented	$ 196,426	Assessment: 02/97 Renovation: 01/98 Validation: 06/98 Implementation: 06/98
Central Processing System	In validation	4,000,000	Assessment: 02/98 Renovation: 06/98 Validation: (01/99) Implementation: (01/99)
Direct Loan Central Database	In validation	Included in Direct Loan Servicing System	Assessment: 02/98 Renovation: (09/98)[a] Validation: (09/98) Implementation: (10/98)
Direct Loan Origination System	Implemented	877,106	Assessment: 03/98 Renovation: 06/98[a] Validation: 06/98 Implementation: 08/98
Direct Loan Servicing System	In validation	3,601,281	Assessment: 02/98 Renovation: (09/98)[a] Validation: (09/98) Implementation: (10/98)
Federal Family Education Loan System	In renovation	4,400,933	Assessment: 10/97 Renovation: (09/98) Validation: (01/99) Implementation: (03/99)
Multiple Data Entry System	In renovation	1,439,935	Assessment:03/98 Renovation: (09/98) Validation: (12/98) Implementation: (01/99)
National Student Loan Data System	In validation	1,066,639	Assessment: 11/97 Renovation: 08/98 Validation: (09/98) Implementation: (10/98)
Postsecondary Education Participants System	Implemented	500,000	Assessment: 10/97 Renovation: 06/98[a] Validation: 06/98 Implementation: 07/98
Pell Grant Recipient Financial Mgmt System	In renovation	2,091,851	Assessment: 03/98 Renovation: (12/98) Validation: (12/98) Implementation: (12/98)
Title IV Wide Area Network	In validation	1,005,000	Assessment: 03/98 Renovation: 05/98 Validation: (10/98) Implementation: (10/98)

(continued)

System	Current status	Estimated Y2K cost	(Estimated) completion
Other mission-critical systems			
Education's Central Automated Processing System	Implemented	90,000	Assessment: 06/98 Renovation: 06/98[a] Validation: 06/98 Implementation: 08/98
Education's Local Area Network	In renovation	2,388,557	Assessment: 12/97 Renovation: (11/98) Validation: (12/98) Implementation: (01/99)
Impact Aid System	In implementation	47,304	Assessment: 06/98 Renovation: 06/98[b] Validation: 06/98 Implementation: (09/98)

[a]System was initially certified as compliant and not considered to be in need of remediation; however, corrections were made as the system was validated. As a result, renovation and validation dates are the same.

[b]This is a replacement for a retired system and therefore was not assessed or renovated.

Source: Department of Education. We did not independently verify this information.

Key Issues Remain That Threaten Education's Delivery of Student Financial Aid

While there has been recent progress, the Department of Education must mitigate critical risks that affect its ability to award and track billions of dollars in student financial aid. Specifically, the department must address the need for adequate testing, the renovation and testing of data exchanges, and the development of business continuity and contingency plans. Unless these issues are effectively addressed, the ability of the department to deliver financial aid to students will be compromised.

Limited Time Available for Testing Education's Mission-Critical Systems

Complete and thorough Year 2000 testing is essential to providing reasonable assurance that new or modified systems process dates correctly and will not jeopardize an organization's ability to perform core business operations after the turn of the century. Moreover, since the Year 2000 computing problem is so pervasive, the requisite testing is generally extensive and expensive. Experience shows that Year 2000 testing is consuming between 50 and 70 percent of a project's time and resources.

Agencies must not only test Year 2000 compliance of individual applications, but also the complex interactions among numerous converted or replaced computer platforms, operating systems, utilities, applications, databases, and interfaces. It is also important to work early

and continually with an organization's data exchange partners so that end-to-end testing can be effectively planned and executed. The Society for Information Management Year 2000 Working Group has noted that because many enterprises do not have experience with testing at this order of magnitude, the results will often be significant cost overruns and missed commitments. Indeed, for Education, the task ahead is formidable—it requires a cooperative, coordinated, and thorough testing process across the disparate systems in the student financial aid delivery network.

Because of Education's late start and the compression of its Year 2000 compliance schedule to meet the OMB deadline (mission-critical systems to be implemented by March 31, 1999), time available for key testing activities within the renovation, validation, and implementation phases for individual mission-critical systems is limited. In fact, in some cases, the schedule for Education's mission-critical systems has less time allocated for the renovation and validation phases than was spent on assessment. These are large, often complex systems encompassing hundreds of thousands and, in some cases, millions of lines of software code. Accordingly, the limited amount of time available raises concerns about Education's ability to complete essential testing in time.

Department officials have acknowledged that completing testing activities within schedule will be difficult. Indeed, the schedule constraints placed on test activities for individual systems have already been shown to be unrealistic in several cases. For example, the schedule for 7 of the 14 mission-critical systems has recently been extended to allow more time for testing.

Beyond the testing of individual mission-critical systems, Education will also have to devote a significant amount of time to end-to-end testing of its mission-critical business processes and supporting systems, such as those associated with student financial aid delivery. According to Education officials, the department plans to conduct such testing between January and March 1999, after all individual mission-critical systems have been certified as Year 2000 compliant. Tentatively from April to September 1999, external data exchange partners will have time periods available for testing their interfaces. However, no detailed plans currently exist for this testing. Education officials stated that they are working on these plans and intend to have them completed shortly, pending discussion with the student financial aid community.

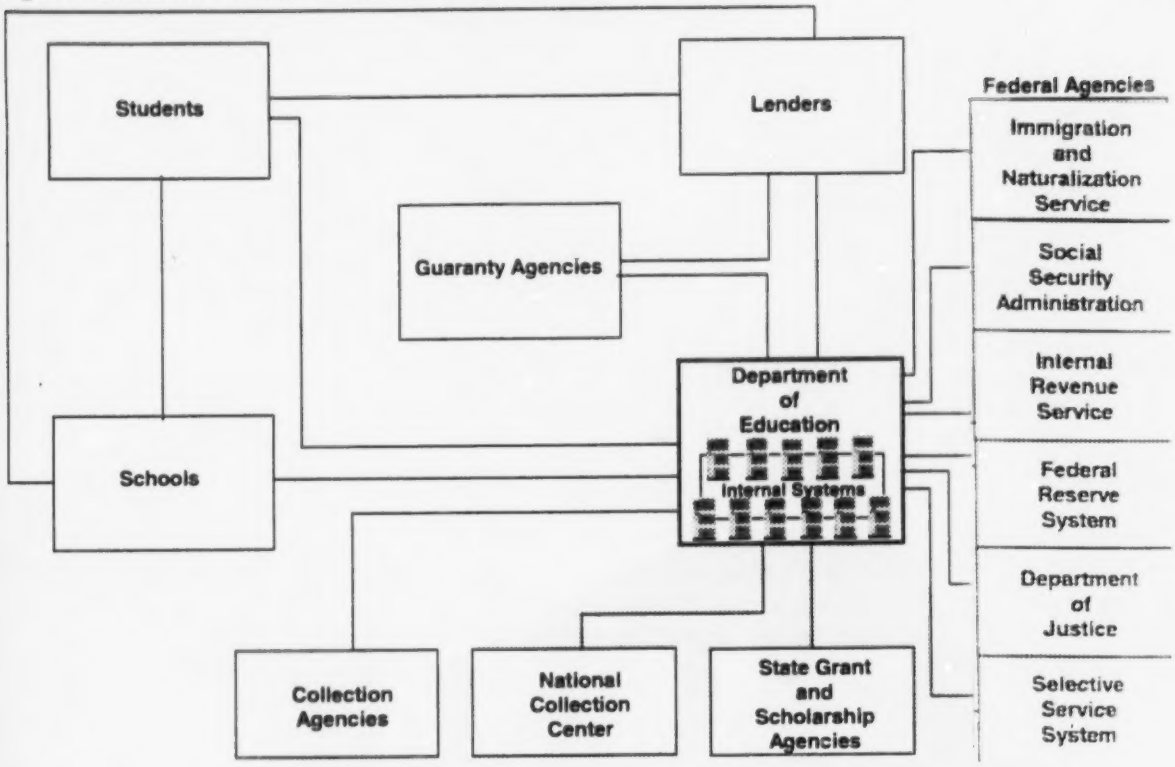
Data Exchanges Are Critical

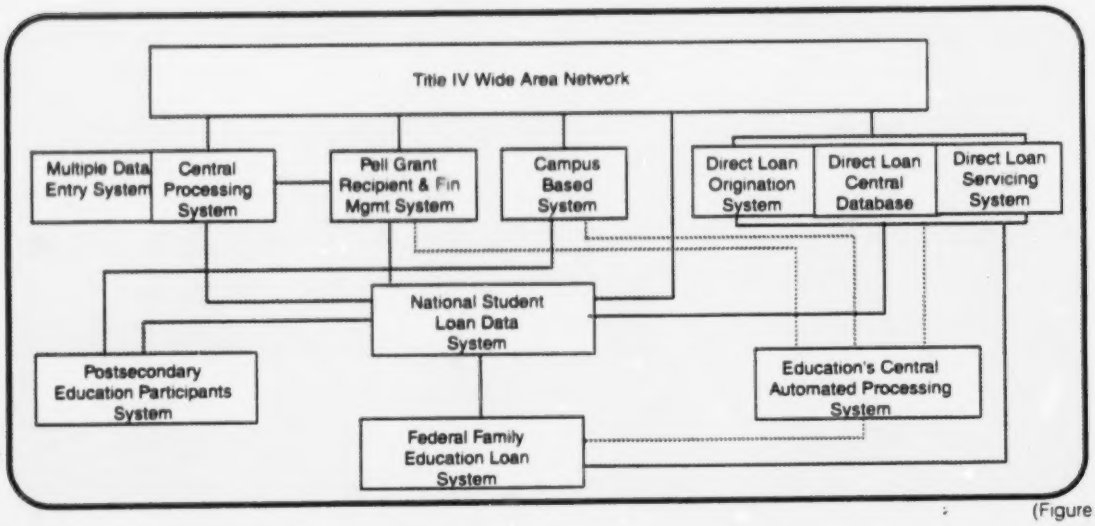
As 2000 approaches, organizations must be diligent in implementing measures to ensure that exchanging data across systems compromises neither the systems nor the data. Conflicting data exchange formats or data processed on noncompliant systems could introduce and propagate errors from one system to another. To mitigate this risk, organizations must inventory and assess their data exchanges, reach agreements with data exchange partners on how data will be exchanged, test and implement data exchange formats, develop and test bridges and filters to handle nonconforming data, and develop contingency plans in the event of failure.

Education's student financial aid data exchange environment is massive and complex. It includes about 7,500 schools, 6,500 lenders, and 36 guaranty agencies, as well as other federal agencies. Figure 2 provides an overview of this environment.

To address its data exchanges with schools, lenders, and guaranty agencies, Education has dictated how the data that these entities provide to the department should be formatted. Education handles this in one of two ways: it either provides software to the entity, such as EDExpress (which specifies the format—including dates—for data exchanges), or provides the technical specifications for the entity to use in developing the necessary interface.

Figure 2: Education's Student Financial Aid Data Exchange Environment




Title IV Wide Area Network
Multiple Data Entry System
Central Processing System
Pell Grant Recipient & Fin Mgmt System
Campus Based System
Direct Loan Origination System
Direct Loan Central Database
Direct Loan Servicing System
National Student Loan Data System
Postsecondary Education Participants System
Education's Central Automated Processing System
Federal Family Education Loan System

(Figure notes on next page)

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Source: Department of Education

Education has followed up on this approach with its data exchange partners by (1) developing memorandums of understanding with each guaranty agency and federal agency and (2) conducting outreach on Year 2000 awareness with schools. Regarding its outreach to schools, Education has shared information through memoranda (i.e., "Dear Colleague" letters), presentations at conferences and training sessions, and over the Internet. The "Dear Colleague" letters provide an overview of the Year 2000 issue and summarize the department's approach for ensuring compliance of student financial aid systems.

To further ensure that Education's data exchange partners have indeed made their interfaces compliant, the department will need to engage in end-to-end testing of its mission-critical business processes, including data exchanges. As noted earlier, Education has not completed these end-to-end test plans.

Further complicating data exchange compliance is that Education will need to ensure that the data it is receiving from its partners are not just formatted correctly but are accurate. As we have previously reported, Education has experienced serious data integrity problems in the past.[12]

To assess how educational institutions are progressing with their Year 2000 programs, the department recently conducted a survey of the Year 2000 readiness of postsecondary schools participating in the Direct Loan Program. The preliminary results are not encouraging: up to one-third of the schools did not even have a compliance plan in place.

Business Continuity and Contingency Planning: A Necessary Safety Net

Given the challenges Education faces in making sure that all of its mission-critical systems are adequately tested and in addressing the complexities of the massive number of data exchanges, it will be difficult for the department to enter the new century without some problems. Therefore, it is critical that Education initiate the development of realistic contingency plans to ensure continuity of core business processes in the event of Year 2000-induced failures.

[12]GAO/AIMD-97-122, July 29, 1997.

Business continuity and contingency plans should be formulated to respond to two types of failure: those that can be predicted (e.g., systems renovations that are already far behind schedule) and those that are unforeseen (e.g., systems that fail despite having been certified Year 2000 compliant, or those that cannot be corrected by January 1, 2000, despite appearing to be on schedule today). Moreover, contingency plans that focus only on agency systems are inadequate. Federal agencies depend on data provided by their business partners as well as on services provided by the public infrastructure. Thus, one weak link anywhere in the chain of critical dependencies can cause major disruption. Given these interdependencies, it is imperative that contingency plans be developed for all critical core business processes and supporting systems, regardless of whether these systems are owned by the agency.

Our guide on ensuring business continuity and contingency planning, issued last month, provides further detail on this.[13] This guide describes four phases supported by agency Year 2000 program management: initiation, business impact analysis, contingency planning, and testing. Each phase represents a major Year 2000 business continuity planning project activity or segment.

Education initiated contingency planning activities in February 1998. According to department officials, Education is committed to developing business continuity and contingency plans for each mission-critical business process and supporting systems. As part of this commitment, Education recently appointed a senior executive to manage the development and testing of continuity and contingency plans for student financial aid operations. The department expects to complete these plans by March 31, 1999.

In summary, Mr. Chairman, the Department of Education's endeavor to make its programs and supporting systems Year 2000 compliant is of urgent priority. Should critical student financial aid systems not be Year 2000 compliant in time, Education's ability to control the award process could be compromised, with cascading effects reaching schools, students, guaranty agencies, and lenders.

While the department has made progress in preparing its systems for the year 2000, initial delays have left it with significant risks—risks that must be effectively managed.

[13]GAO/AIMD-10.1.19, August 1998.

This concludes my statement. I would be pleased to respond to any questions that you or other Members of the Subcommittee may have at this time.

GAO Reports and Testimony Addressing the Year 2000 Crisis

Year 2000 Computing Crisis: Severity of Problem Calls for Strong Leadership and Effective Partnerships (GAO/T-AIMD-98-278, September 3, 1998).

Year 2000 Computing Crisis: Strong Leadership and Effective Partnerships Needed to Reduce Likelihood of Adverse Impact (GAO/T-AIMD-98-277, September 2, 1998).

Year 2000 Computing Crisis: Strong Leadership and Effective Partnerships Needed to Mitigate Risks (GAO/T-AIMD-98-276, September 1, 1998).

Year 2000 Computing Crisis: State Department Needs To Make Fundamental Improvements To Its Year 2000 Program (GAO/AIMD-98-162, August 28, 1998).

Year 2000 Computing: EFT 99 Is Not Expected to Affect Year 2000 Remediation Efforts (GAO/AIMD-98-272R, August 28, 1998).

Year 2000 Computing Crisis: Avoiding Major Disruptions Will Require Strong Leadership and Effective Partnerships (GAO/T-AIMD-98-267, August 19, 1998).

Year 2000 Computing Crisis: Strong Leadership and Partnerships Needed to Address Risk of Major Disruptions (GAO/T-AIMD-98-266, August 17, 1998).

Year 2000 Computing Crisis: Strong Leadership and Partnerships Needed to Mitigate Risk of Major Disruptions (GAO/T-AIMD-98-262, August 13, 1998).

FAA Systems: Serious Challenges Remain in Resolving Year 2000 and Computer Security Problems (GAO/T-AIMD-98-251, August 6, 1998).

Year 2000 Computing Crisis: Business Continuity and Contingency Planning (GAO/AIMD-10.1.19, August 1998).

Internal Revenue Service: Impact of the IRS Restructuring and Reform Act on Year 2000 Efforts (GAO/GGD-98-158R, August 4, 1998).

Social Security Administration: Subcommittee Questions Concerning Information Technology Challenges Facing the Commissioner (GAO/AIMD-98-235R, July 10, 1998).

Year 2000 Computing Crisis: Actions Needed on Electronic Data Exchanges (GAO/AIMD-98-124, July 1, 1998).

Defense Computers: Year 2000 Computer Problems Put Navy Operations at Risk (GAO/AIMD-98-150, June 30, 1998).

Year 2000 Computing Crisis: A Testing Guide (GAO/AIMD-10.1.21, Exposure Draft, June 1998).

Year 2000 Computing Crisis: Testing and Other Challenges Confronting Federal Agencies (GAO/T-AIMD-98-218, June 22, 1998).

Year 2000 Computing Crisis: Telecommunications Readiness Critical, Yet Overall Status Largely Unknown (GAO/T-AIMD-98-212, June 16, 1998).

GAO Views on Year 2000 Testing Metrics (GAO/AIMD-98-217R, June 16, 1998).

IRS' Year 2000 Efforts: Business Continuity Planning Needed for Potential Year 2000 System Failures (GAO/GGD-98-138, June 15, 1998).

Year 2000 Computing Crisis: Actions Must Be Taken Now to Address Slow Pace of Federal Progress (GAO/T-AIMD-98-205, June 10, 1998).

Defense Computers: Army Needs to Greatly Strengthen Its Year 2000 Program (GAO/AIMD-98-53, May 29, 1998).

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